

Developed Personal Record Software.

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ABSTRACT

All educational institutions in Nigeria, such as the national Universities, still operate on the manual method of record keeping and computation of students' grade point averages (GPA). This paper examines the inadequacies involved in the manual method and proposes a solution by developing a software system using Microsoft (MS) Visual Basic® (VB) 6.0. This software was developed and tested with respect to the peculiar situations and problems associated with our educational system. The results were satisfactory and this new system has some qualities such as reduction in the cost of processing of information, reduction in time spent in computing GPA and generating transcripts, increase in accuracy and efficiency, and elimination of duplication of effort which makes it superior to the manual system of student record keeping. This new system is flexible and can be modified to suit any kind of record keeping and data processing. Thus, the use of computers in information processing will have a positive impact on the University administration within Nigeria.

(Keywords: p record software, MS Visual Basic 6.0®, computation of GPA, computer hardware, computer software)

INTRODUCTION

One of the largest investments in many organizations is the creation, maintenance, and retrieval of information [1]. It has been estimated that in an organization such as a tertiary educational community, information is highly essential for correct students' record and examination data. Student information, if not properly created and stored, will cause many errors in usage. Nearly, every section of the educational system requires information

processing. With the use of computers for information processing, the following are possible: instant access to students' personal and course information, instant student information updating, automatic computation of the Grade Point Average (GPA), generation of the graduating students list, monitoring of failed courses, keeping an up-to-date record of the entire student body in the University, storing course information such as course code, course description, course unit, and scores for the purpose of GPA computation, and producing user-friendly data entry screens for ease of use.

It is unfortunate that all educational institutions in the developing world, such as the Universities in Nigeria, still operate under the manual method of record keeping and computation of GPA.

Ambrose Alli University (A.A.U.) Ekpoma, Edo State, Nigeria, for example, still operates on this manual method which is highly prone to errors. This has resulted in problems in the computation of student GPA scores and course registration.

The essence of this study is to eliminate most of the setbacks associated with the manual processing of students data. A.A.U, Ekpoma was established by the statutes of the Bendel State House of Assembly as contained in the extra ordinary Gazette No. 40 vol. 18 of 20th July 1981. At its inception, the University operated a collegiate system and the College of Engineering and Technology was one of the eight-foundation colleges.

The college of Engineering and Technology became the Faculty of Engineering and Technology on October 1, 1984 [2]. The Faculty offers undergraduate curricula leading to Bachelor's degrees in Engineering. Separate Departments within the faculty administers these curricula and each Department emphasizes a core program of fundamental applied science and

engineering subjects. In carrying out this study we focus on the use of computers to achieve our goals.

MATERIALS AND METHODS

Automation of the student record system and the computation of GPAs involves finding solutions to the problems imposed by the existing manual method. Preliminary investigations about the current manual record keeping were carried out at the Examinations and Records Unit and the various academic departments.

Research at the various Faculties, Departments, Institutes, and Directorates was carried out. A detailed study of the student information handbook was also carried out. The problems with the manual operations were identified and a new system was proposed, designed, and implemented, using Visual Basic (VB) 6.0®, a programming language developed by Microsoft Corporation.

There are different types of tools used in achieving the design stage. In this case, the top-down approach is used [3, 4, 5]. Tables 1, 2, and 3 show the database table structure. Figures 1 to 5 show some of the proposed system data flow diagrams.

Table 1: Database Structures.

Field –Name	Field Type	Field-Size
Surname	Text	30
Other name	Text	30
Matric number	Text	6
Faculty	Text	30
Department	Text	30

Table 2: Student Personal Information Table.

Filed- Name	Field-Type	Field-Size
Matric-number	Text	6
Course-code	Text	7
Course-description	Text	30
Course-unit	Number	Integer
Score	Number	Integer
Grade point	Number	Integer

Table 3: Courses' Information Table.

Field –Name	Field-Type	Field-Size
Matric-number	Text	6
Total unit taken	Number	Integer
Total-weight point	Number	Integer
GPA	Number	Single
Cumulative GPA (CGPA)	Number	Single

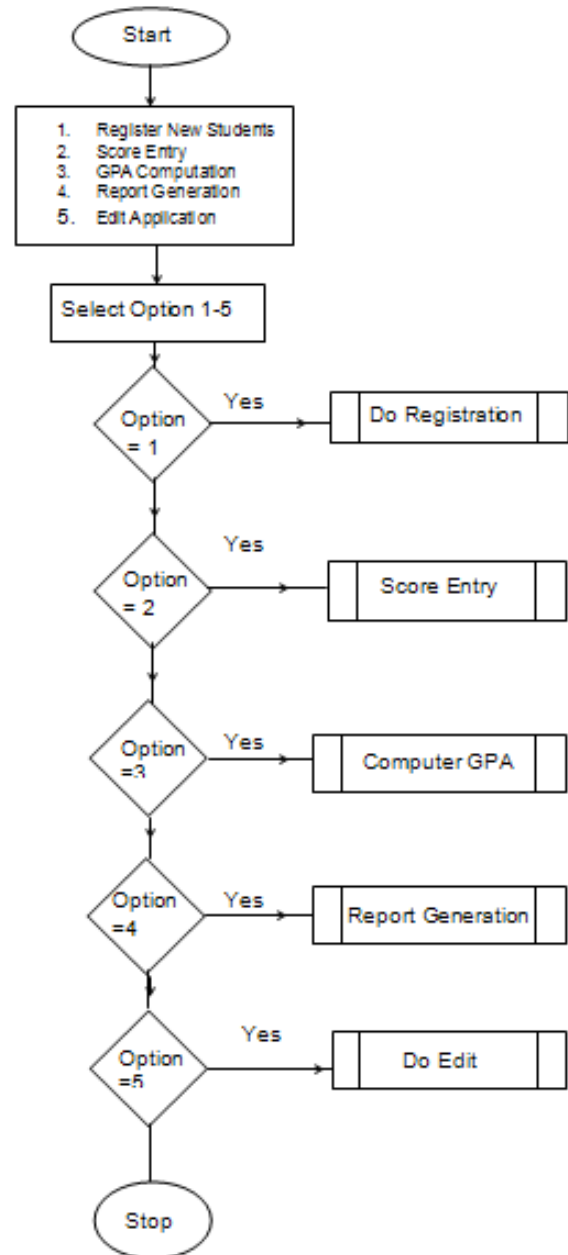


Figure 1: Flow Chart for Information Processing.

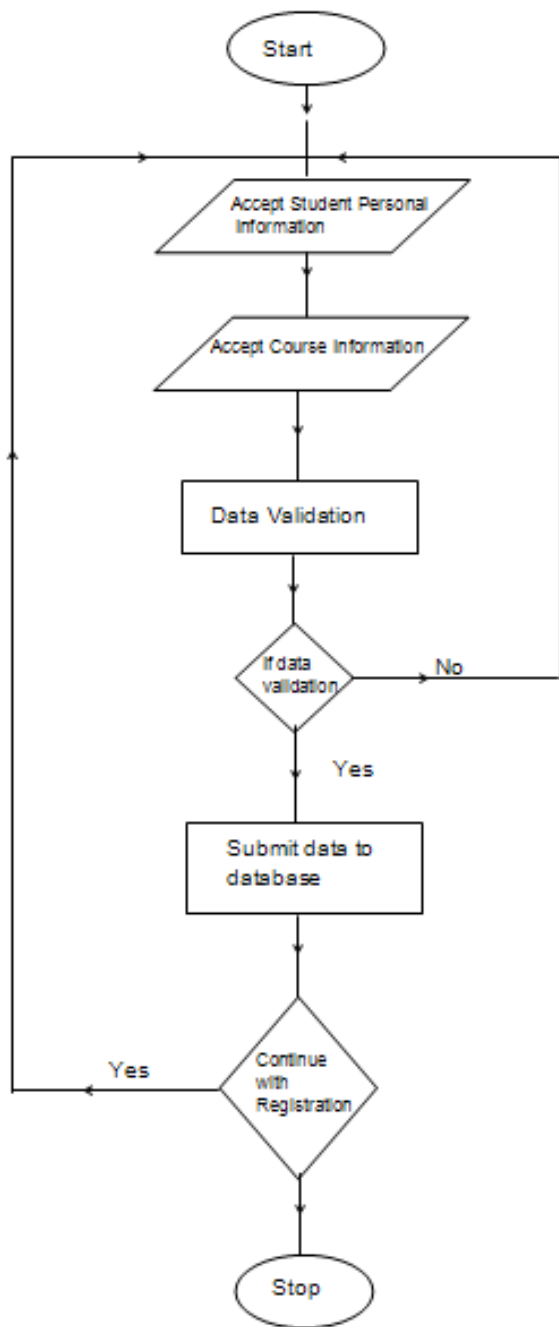


Figure 2: Flow Chart for Student Reports.

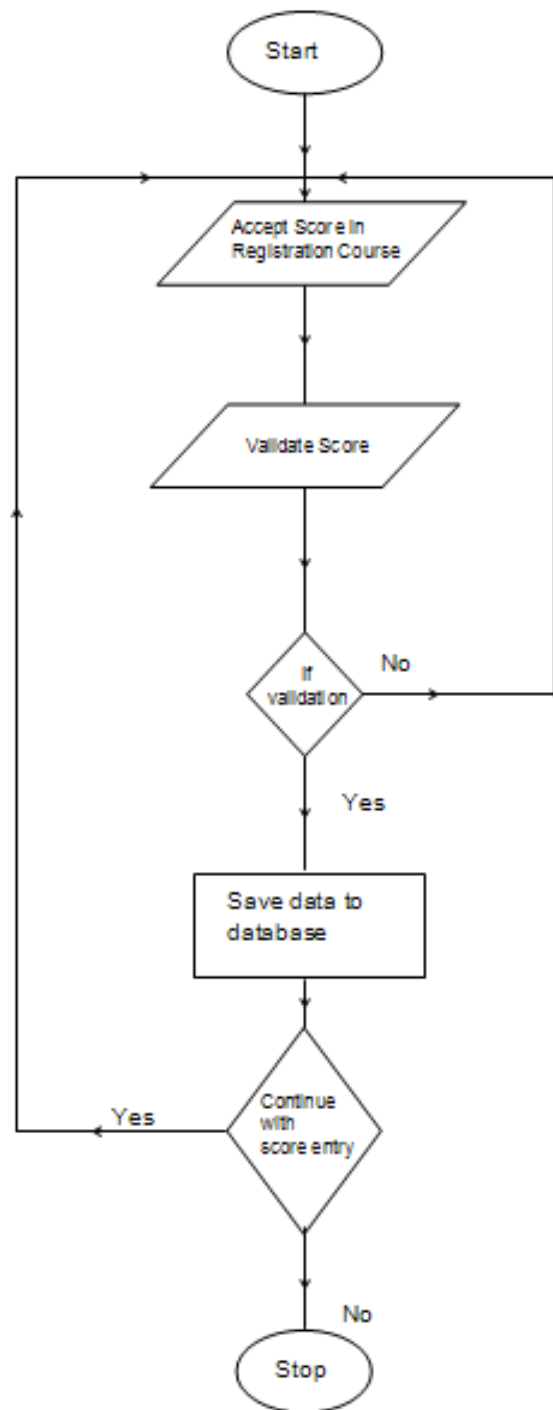


Figure 3: Flow Chart for the Computation of GPA.

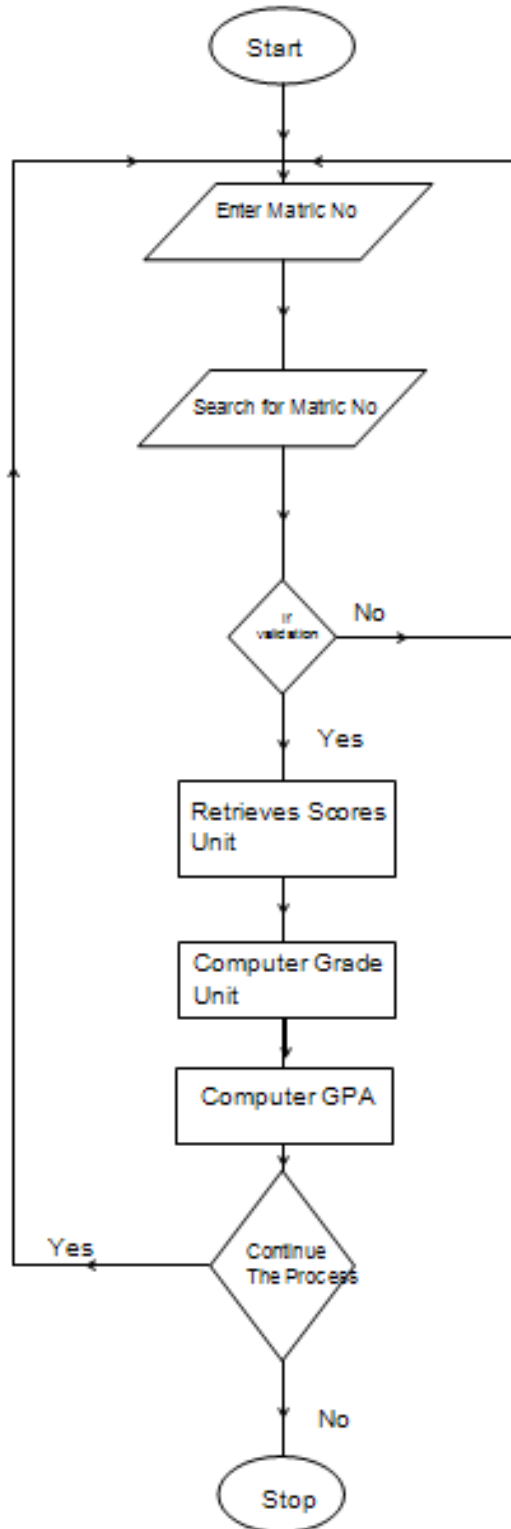


Figure 4: Flow Chart for Entering Student Scores.

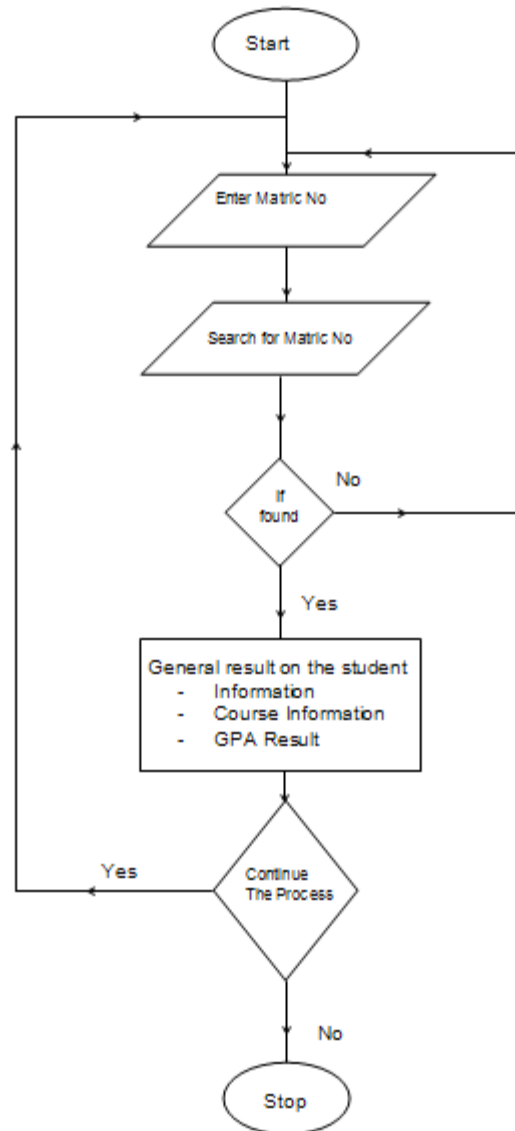


Figure 5: Flow Chart for Student Registration.

ANALYSIS OF RESULTS

To fully document the operations of the system we first describe the processing steps that convert input to output by the use of flow diagrams and program design aids. The system implementation stage involved hardware acquisition, software development, testing of programs and procedures, varieties of installation activities and training of the end users who will operate the new proposed system.

The successful implementation of our proposed system means converting from the use of the present manual system to the operation of a new and improved system.

HARDWARE REQUIREMENT

The computer hardware needed to support our designed software package should have the following minimum requirements: Pentium 2 motherboard with 300MHz processor or equivalent, 64 MB extended memory, 20MB free hard disk space, 32x CD-ROM drive for installation purpose, and a printer for output (results and transcripts) generation. The developed system can also be implemented in any system that is compactable with IBM machines.

SOFTWARE REQUIREMENT

The software requirements for the development at the minimum level are:

Windows 98® or higher operating systems (Microsoft) and relational database management system (RDBMS)® for the system database management. As stated earlier, VB 6.0 was used as the programming language. For the database creation, Microsoft (MS) Access® was used. MS Access® is among the new generation of relational DBMS. It eases database and table creation and manipulation. The entire database used in this research work was created using MS Access version XP® (2003) [6, 7, 8]. After the necessary software and hardware have been acquired, we proceeded with the system installation.

The developed system is packaged into installation form on a CD-ROM using the VB package and development tool. This makes it possible for the developed system to be installed on any system running the Windows® operating system.

The developed system is made up of the following modules (see Figure 1):

- I. Registration module –This module takes care of student's registration at the beginning of the semester. It records the student's personal information. It also handles the course registration for the

students. For returning students, it shows the list of previously failed course for registration.

- II. Edit module- This module allows the already entered data about students to be modified in case of errors or updates.
- III. Score entering module - This module allows the students scores to be entered for the purpose of GPA and CGPA computation.
- IV. GPA computation module- After entry of all of the scores, you can use this module to compute the students GPA.
- V. Report module- This module takes care of generating the following reports.
 - a) List of registered student
 - b) List of students offering a particular course
 - c) List of students score, grade point and the GPA
 - d) List of student that fail or pass certain course
 - e) Graduating student list
- VI. Exit module- This module allows the application/system to be terminated.

CONCLUSION AND RECOMMENDATION

In order to introduce the use of computers into the manual processing of students' information, careful investigation and analyses were carried out on the existing method. Many text and journal (handbook) records were consulted to have an in-depth and thorough understanding of the major concepts of operations. This work finally introduced a computerized system to the Examinations and Records Unit, Academic Departments, Faculties, Institutions and Directorates, in Ambrose Alli University, Ekpoma.

This introduction will go a long way in eradicating some of the setbacks of the existing manual methods if implemented by the relevant University authorities.

After the trend of investigation and initial analysis had been made on both the manual system (old) and the new system of carrying out the operation of students information system, it became

obvious that the new system has some qualities such as reduction in the cost of processing, reduction in time spent in computing GPA and generating transcript, increase in accuracy and efficiency, and elimination of duplication of effort which makes it overshadow the manual system of students record keeping. This new system is flexible and can be modified to suite any kind of record keeping and data processing.

The efficiency of the new system can be further enhanced based on the following recommendations: adequate planning for both the hardware and software support, and system maintenance. Effort should be made to validate the input data to ensure the integrity of the system. The primary users should be given an initial orientation on how to interact with the system for optimal utilization of the facilities of the system.

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